

WHAT IS CLAIMED IS:

1. A method for time measurement of a signal at an input for a semiconductor chip mounted on a semiconductor module, comprising:

spatially assigning an equivalent conductor pattern (ECP) to an input to be measured;

integrating the ECP on the semiconductor module;

loading the ECP with passive components to form an equivalent load circuit (ELC),

wherein, when a designated signal pin is detached, the ELC simulates the characteristic electrical values specified for the designated signal pin with the semiconductor chip loaded and the ELC not connected; and

performing a time measurement of the signal at a solder pad associated with the designated signal pin and connected to the ELC with the designated signal pin detached, wherein a signal is derived using a measuring probe in communication with at least one of the signal pin, a portion of conductor, and a solder pad directly connected to the latter at a short distance from it, and compared with a time reference.
2. The method of claim 1, wherein, during integration of the ECP, the ECP form and electrical properties are chosen such that the resulting ELC simulates specified characteristic electrical values.
3. The method of claim 1, wherein the specified characteristic electrical values are established by a previous measurement carried out at the designated signal pin or associated solder pad of the loaded semiconductor chip without connection to the ELC.

4. The method of claim 1, wherein the components used for the loading of the ECP are resistive and/or capacitive and/or inductive components.

5. The method of claim 1, wherein the ECP is formed such that, after component loading, the ECP establishes an electrical connection with a reference ground pad.

6. The method of claim 5, wherein the distance of the reference ground pad from the solder pad associated with the signal pin is chosen to coincide with the distance of a reference ground needle from a signal measuring needle of the measuring probe.

7. The method of claim 1, wherein the semiconductor chip is a semiconductor chip that can be mounted using the ball-grid-array (BGA) technique.

8. A device for time measurement of signals at a solder pad associated with a designated signal pin of a semiconductor chip to be mounted on a semiconductor module, comprising:

an equivalent conductor pattern (ECP) integrated on the semiconductor module, wherein the ECP is spatially assigned to at least one of the designated signal pin and an associated solder pad to be measured, and wherein a form and electrical properties of the ECP are adapted to the time-relevant characteristic electrical values specified for the signal pin with the semiconductor chip loaded with components; and

an equivalent load circuit (ELC), formed by loading the ECP with passive components so that, when connected to the solder pad while the signal pin of the semiconductor chip is detached, the ELC simulates the time-relevant characteristic electrical values specified for the

designated signal pin with the semiconductor chip loaded with components with the ELC not connected, whereby the time measurement can be performed at the solder pad connected to the ELC with the designated signal pin of the semiconductor chip detached.

9. The device of in claim 8, wherein the components of the ELC comprise resistive and/or capacitive and/or inductive components.

10. The device of claim 8, wherein the ECP is formed such that, in the loaded state, it establishes an electrical connection with a reference ground pad.

11. The device of claim 10, wherein the ECP further comprises:
a first and a second longitudinal branch and a first and a second transverse branch, and a first, second, third and fourth solder pad belonging to the first longitudinal branch;
a first, second, third and fourth solder pad belonging to the second longitudinal branch;
a first and second solder pad belonging to the first transverse branch, wherein the first and second solder pad belonging to the first transverse branch are separated by a predetermined distance; and
a first and second solder pad belonging to the second transverse branch, wherein the first and second solder pad belonging to the second transverse branch are separated by a predetermined distance.

12. The device of claim 11, wherein the first and second solder pads of the first longitudinal branch are arranged neighboring one another and separated by a predetermined distance,

wherein the first and second solder pads of the second longitudinal branch are arranged neighboring one another and separated by a predetermined distance, and the third and fourth solder pads of the first longitudinal branch are arranged neighboring one another and separated by a predetermined distance,

wherein the third and fourth solder pads of the second longitudinal branch are arranged neighboring one another and separated by a predetermined distance, and wherein the first and second solder pads of the second longitudinal branch are in each case arranged neighboring one another and separated by a predetermined distance.

13. The device of claim 12, wherein the first solder pad of the first longitudinal branch is connected via a piece of conductor attached to the solder pad associated with the designated signal pin,

wherein the first solder pad of the second longitudinal branch is connected via a piece of conductor attached to the reference ground pad which carries a reference ground signal,

wherein the second solder pad of the first longitudinal branch is connected to the third solder pad of the first longitudinal branch and the first solder pad of the first transverse branch via a piece of conductor,

wherein the second solder pad of the second longitudinal branch is connected to the third solder pad of the second longitudinal branch and the second solder pad of the first transverse branch via a piece of conductor,

and wherein the fourth solder pads of the first and second longitudinal branches, respectively are respectively connected to the first and second pads of the second transverse branch via a piece of conductor.

14. The method of claim 13, wherein the solder pads of the two longitudinal branches and the two transverse branches that are respectively neighboring one another at a predetermined distance are loaded with one of the components of the ELC.

15. The device of claim 8, wherein the semiconductor chip is a semiconductor memory chip that can be mounted using the ball-grid-array (BGA) technique.

16. A device for measuring signals at an input on a semiconductor chip module, comprising:

an electrical conductor pattern (ECP) having a plurality of longitudinal and transverse branches;

a plurality of electrical components, wherein the plurality of components are affixed to the ECP and form an equivalent load circuit (ELC); and

a plurality of solder pads, wherein a first solder pad can be detachably connected to the input on the semiconductor chip module, and wherein a second solder pad can be reversibly connected to a ground reference input on the semiconductor module.

17. The device of claim 16, wherein the plurality of electrical components comprises resistive and/or inductive and/or capacitive components.